

ABSTRACT

Fusing systems are provided that utilize a heated fusing roller in conjunction with a backup belt assembly to provide a large fusing region within a minimal amount of space. The heated fusing roller comprises a thin walled steel roll having an elastomeric inner layer and a non-resilient fluoropolymer release layer. The thin wall steel core allows for relatively faster warm up times compared to conventional fusing systems. Moreover, the backup belt assembly allows for the varying of the pressure profile and the enhancement of media release. The utilization of this design minimizes the size of the system necessary to attain the adhesion of toner to the media, which in turn reduces the cost of the mechanism. Further, the use of the varying pressure nip minimizes the amount of friction between a belt support member and the belt itself, which may reduce friction, wear, and will reduce the risk of print quality defects. Overall, the various embodiments of the present invention contain functional flexibility, a relatively small functional envelope, and better performance at a lower cost compared to conventional fusing systems.